

## GLAST Project Configuration Control Board (CCB) Minutes

A GLAST Project CCB Meeting was held on Thursday, May 02, 2002, at 3:00 p.m., in Building 16, Room, Room 8E (Liz Citrin's Office).

**CCB No.:** CCB-008

**List of Attendees:**

Liz Citrin, Al Vernacchio, Norman Rioux, Bill Browne, Erik Andrews, Bill Anderson, Ross Cox, John Deily, Joy Bretthauer and Jim Chipouras

The Following CCRs were discussed and dispositioned:

<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0036	Safehold Independence	Joy Bretthauer

**Disposition:** *Approved as Submitted.* The purpose of this CCR was to delete the Code Sharing requirement from the Spacecraft Performance Specification.

**Actions items:**

The GLAST Project CMO will obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the Spacecraft Performance Specification.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

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<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0037	Replace Table IV EMI Requirements Matrix with Clean Version	Fred Blanchette

**Disposition:** *Approved as Submitted.* The purpose of this CCR was to replace the current version of the EMI Requirements Matrix (Table IV) with a clean legible copy in the EMI Requirements Document.

**Actions items:**

The GLAST Project CMO will obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the EMI Requirements Document.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

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<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0038	Imminent Ops Con CCR	Dennis Small

**Disposition:** *Approved with Changes.* The purpose of this CCR was to update Section 4.6 in the Operations Concept Document with a more complete definition of "imminent". The change to Section 4.6 as submitted with the CCR was modified by the CCB and approved as follows:

**FROM (as submitted):**

A ground contact is "imminent" if there is insufficient time to perform the requested repointing maneuver and then maneuver from the repoint attitude to the attitude required for the ground contact.

**TO (as approved):**

A ground contact is "imminent" if there is insufficient time to perform the requested repointing maneuver and then maneuver from the repoint attitude to the attitude required for the ground contact without data loss.

**Actions items:**

The CMO will update CCR 433-0038 with the approved changes, obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the Operations Concept Document.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0039	Fix Typos in the MSS	Norman Rioux

**Disposition:** *Approved as Submitted.* The purpose of this CCR was to correct typos in the Mission System Specification.

**Actions items:**

The GLAST Project CMO will obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the Mission System Specification.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0040	MSS Radiation Environment Specifications	Norman Rioux

**Disposition:** *Deferred.* The purpose of this CCR was to add radiation specifications to the Mission System Specification. This CCR was deferred pending Project Manager discussions with radiation personnel.

**Actions items:**

The GLAST Project Manager will provide radiation personnel comments to Norman Rioux.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

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<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0041	Delete the AO Fluence Specification in the MSS	Norman Rioux

**Disposition:** *Approved as Submitted.* The purpose of this CCR was to delete the specific requirement quantifying the AO fluence in the Mission System Specification.

**Actions items:**

The GLAST Project CMO will obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the Mission System Specification.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

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<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0042	Delete the Target of Opportunity Transmission Requirement in the MSS	Norman Rioux

**Disposition:** *Approved as Submitted.* The purpose of this CCR was to delete Section 3.4.2.2.1 (Target of Opportunity Transmission) in the Mission System Specification.

**Actions items:**

The GLAST Project CMO will obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the Mission System Specification.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

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**CCR No.****Subject****Sponsor**

433-0043

Ensure Uniformity for Earth Avoidance Angle in MSS

Norman Rioux

**Disposition:** *Approved with Changes.* The purpose of this CCR was to indicate "TBR" after each reference to the Earth Avoidance Angle in the Mission System Specification. The change as submitted with the CCR was modified by the CCB and approved as follows:

**FROM (as submitted):**

**3.3.2.3.2 Earth Avoidance Constraint**

The observatory shall not point the +Z observatory axis within 30 degrees (TBR) of any portion of the Earth, except during a repointing slew or by ground command.

**3.3.2.3.3 Target Within 30 Degrees (TBR) of the Earth**

When the observation target is unocculted, but within 30 degrees (TBR) of the Earth, the observation target shall be maintained within 30 degrees (TBR) of the +Z Observatory axis.

**3.3.2.3.4 Pointing Adjustment**

When the observation target is occulted, or unocculted but within 30 degrees (TBR) of the Earth, the commanded pointing direction shall be adjusted by the spacecraft to accommodate the Earth avoidance constraint.

**TO (as approved):**

**3.3.2.3.2 Earth Avoidance Angle**

The Earth Aavoidance Angle ~~for the Earth avoidance constraint~~ shall be a parameter that is adjustable on orbit.

**3.3.2.3.3 Earth Avoidance Angle Initial Value**

The initial value of the Earth Aavoidance Angle shall be 30 degrees (TBR).

**3.3.2.3.42 Earth Avoidance Constraint**

The observatory shall not point the +Z observatory axis ~~to within the Earth Aavoidance Angle~~ 30 degrees (TBR) of any portion of the Earth, except during a repointing slew or by ground command.

**3.3.2.3.53 Target Within the Earth Avoidance Angle ~~30 Degrees of the Earth~~ of the Earth**

When the observation target is unocculted, but within ~~the Earth Aavoidance Angle~~ 30 degrees of the Earth, the observation target shall be maintained within ~~the Earth Aavoidance Angle~~ 30 degrees of the +Z Observatory axis.

**3.3.2.3.64 Pointing Adjustment**

When the observation target is occulted, or unocculted but within ~~the Earth Aavoidance Angle~~ 30 degrees of the Earth, -the commanded pointing direction shall be adjusted by the spacecraft to ~~accommodate~~ **accommodate** the -Earth avoidance constraint.



## Actions items:

The CMO will update CCR 433-0043 with the approved changes, obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the Mission System Specification.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

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<u>CCR No.</u>	<u>Subject</u>	<u>Sponsor</u>
433-0044	Ensure Uniformity for Earth Avoidance Angle in SPS	Norman Rioux

**Disposition:** *Approved with Changes.* The purpose of this CCR was to indicate "TBR" after each reference to the Earth Avoidance Angle in the Spacecraft Performance Specification. The change as submitted with the CCR was modified by the CCB and approved as follows:

### FROM (as submitted):

#### 3.4.5.1 Yaw Steering

The observatory shall maintain the sun line within 1 degree, 3-sigma, of the spacecraft X-Z plane, on the +X side, in the observation modes. During yaw slew maneuvers and during repointing slews, the sun line may depart from the spacecraft X-Z plane, but the combined direct solar heat load absorbed by both LAT radiators due to these excursions may not exceed 27 watts when averaged over any one-orbit period. This requirement shall be verified by thermal analysis using the LAT reference radiators specified in section 3.2.3 of the LAT IRD, 433-IRD-0001. If necessary, the observatory +Z axis may be off-pointed from its nominal sky survey pointing profile by up to 20 degrees, 3-sigma radial, during such slews in order to maintain the sun constraint.

#### 3.4.5.5.1 Earth Avoidance Constraint

The observatory shall not point the +Z observatory axis within 30 degrees (TBR) of any portion of the Earth, except during a repointing slew or by ground command.

#### 3.4.5.5.5 Pointing Adjustment

When the observation target is occulted, or unocculted but within 30 degrees (TBR) of the Earth, the commanded pointing direction shall be adjusted by the spacecraft to accommodate the Earth avoidance constraint.

#### 3.4.5.5.6 Target Within 30 Degrees (TBR) of the Earth

When the observation target is unocculted, but within 30 degrees (TBR) of the Earth, the observation target shall be maintained within 30 degrees (TBR) of the +Z Observatory axis.

### TO (as approved):

#### 3.4.5.1 Yaw Steering

The observatory shall maintain the sun line within 1 degree, 3-sigma, of the spacecraft X-Z plane, on the +X side, in the observation modes. During yaw slew maneuvers and during repointing slews, the sun line may depart from the spacecraft X-Z plane, but the combined direct

solar heat load absorbed by both LAT radiators due to these excursions may not exceed 27 watts when averaged over any one-orbit period. This requirement shall be verified by thermal analysis using the LAT reference radiators specified in section 3.2.3 of the LAT IRD, 433-IRD-0001. If necessary, the observatory +Z axis may be off-pointed from its nominal sky survey pointing profile by up to 20 degrees, 3-sigma radial, during such slews in order to maintain the sun constraint.

#### **3.4.5.5.1 Earth Avoidance Angle**

The Earth Aavoidance Aangle for the Earth avoidance constraint shall be a parameter that is adjustable on orbit.

#### **3.4.5.5.2 Earth Avoidance Angle Initial Value**

The initial value of the Earth Aavoidance Aangle shall be 30 degrees (TBR).

#### **3.4.5.5.31 Earth Avoidance Constraint**

The observatory shall not point the +Z observatory axis to within the Earth Aavoidance Aangle30 deg (TBR) of any portion of the Earth, except during a repointing slew or by ground command.

#### **3.4.5.5.42 Secondary Target Repointing**

The GNC subsystem shall have the capability to slew and point to a secondary target (if previously identified) when the primary target is occulted by the Earth.

#### **3.4.5.5.53 Primary Target Repointing**

The GNC subsystem shall return from a secondary target to its primary target when the primary target is no longer occulted by the Earth.

#### **3.4.5.5.64 Pointing Accuracy**

The GNC subsystem shall maintain pointing of the observatory +Z axis in the Pointed Observation Mode within 2 degrees, 1 sigma, radial, with a goal of 0.5 degrees, 1 sigma radial, of its commanded pointing direction.

#### **3.4.5.5.5 Pointing Adjustment**

When the observation target is occulted, or unocculted but within 30 degrees of the Earth, the commanded pointing direction shall be adjusted by the spacecraft to accommodate the Earth avoidance constraint.

#### **3.4.5.5.76 Target Within the Earth Avoidance Angle30 Degrees of the Earthof the Earth**

When the observation target is unocculted, but within the Earth Aavoidance Aangle30 degrees of the Earth, the observation target shall be maintained within the Earth Aavoidance Aangle30 degrees of the +Z Observatory axis.

#### **3.4.5.5.8 Pointing Adjustment**

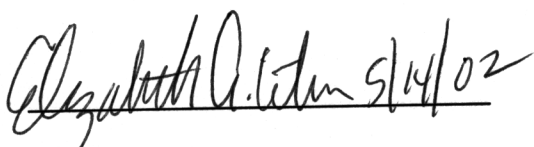
When the observation target is occulted, or unocculted but within the Earth Aavoidance Aangle of the Earth, the commanded pointing direction shall be adjusted by the spacecraft to accommodate the Earth avoidance constraint.

**Actions items:**

The CMO will update CCR 433-0044 with the approved changes, obtain CCR approval signature from the GLAST Project Manager on the CCR form and incorporate the approved changes to the Spacecraft Performance Specification.

**Note:** This CCR was not submitted for review through the GLAST on-line CM system. The CCR sponsor obtained the reviewer comments that were provided with the CCR for CCB.

Minutes approved by:

 Date \_\_\_\_\_

Liz Citrin  
GLAST Project Manager  
(GLAST Project CCB Chairperson)

Minutes prepared by: Jim Chipouras, GLAST Project Configuration Management Office